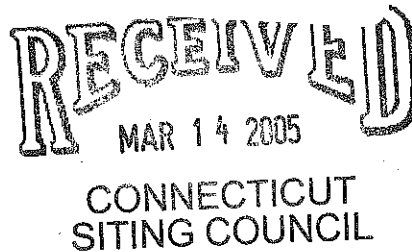


March 14, 2005

Ms. Pamela Katz, Chairman
Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051



Dear Ms. Katz,

Nextel Communications of the Mid-Atlantic, Inc. (Nextel) respectfully submits the attached Petition for a Declaratory Ruling (Petition) to the Connecticut Siting Council for its consideration. Nextel seeks approval for the installation of a Fuel Cell System at one of Nextel's telecommunications facilities located at 188 Moody Road, Enfield, Connecticut.

The proposed installation is similar to others the Council has previously approved and supports the State of Connecticut's goals of encouraging development of alternative generation sources as well as protecting the quality of the environment.

Thank you for your consideration of this matter.

Respectfully,

A handwritten signature in dark ink, appearing to read "Mark Cook".

Mark Cook
Site Development Specialist

Cc: Hon. Patrick Tallarita, Town of Enfield

**STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL**

**PETITION FOR DECLARATORY RULING REGARDING THE INSTALLATION
OF A FUEL CELL SYSTEM AT A NEXTEL COMMUNICATIONS OF THE
MID-ATLANTIC, INC. TELECOMMUNICATIONS FACILITY IN THE TOWN
OF ENFIELD**

MARCH 14, 2005

**Nextel Communications of the Mid-Atlantic, Inc.
Attn: Mark Cook
100 Corporate Place, First Floor
Rocky Hill, CT 06067
Phone: (860) 367-1812
Fax: (860) 513-5477
Email: Mark.Cook@Nextel.com**

Pursuant to Connecticut General Statutes §16-50k and Connecticut Regulations of State Agencies §16-50j-38 et seq., Nextel Communications of the Mid-Atlantic, Inc. ("Nextel"), with a place of business at 100 Corporate Place, Rocky Hill, Connecticut herein petitions the Connecticut Siting Council ("Council") for approval, through declaratory ruling, to install a GenCore Back Up Power Fuel Cell System ("Fuel Cell")¹ at a Nextel telecommunications facility ("Facility") located at 188 Moody Road, Enfield, Connecticut.²

INTRODUCTION

Nextel proposes to utilize a Fuel Cell for the provision of emergency power at its Facility located at 188 Moody Road, Enfield, Connecticut. This Fuel Cell will only operate to provide back up power to Nextel's telecommunications equipment in the case of a power failure at the Facility and one 15-minute testing interval every twenty-eight (28) days. Nextel intends to install the Fuel Cell on or before May 1, 2005 and will maintain the unit on a permanent basis.

DEFINITION OF DEVICE

The Fuel Cell is an electrochemical device which converts chemical energy into electricity and heat, thereby meeting the definition as used in Connecticut General Statutes §16-50k. The Fuel Cell produces a maximum of 5 kW of electricity.

DESCRIPTION AND LOCATION OF PROJECT

The Fuel Cell will be located within Nextel's Facility, an existing 50' x 50' parcel of land, utilized for wireless telecommunications, leased by Nextel and located at 188 Moody Road, Enfield, CT. The Facility includes an existing 180' monopole as well as Nextel antennas on the monopole and a Nextel equipment shelter on the ground. There are two other wireless carriers with antennas on the monopole as well as equipment cabinets located within the Facility. A commercial warehouse occupies the balance of the land at 188 Moody Road, Enfield, Connecticut. The Fuel Cell would be located

¹ Specifications for the Fuel Cell are attached hereto as Exhibit A.

² A Site Plan for the installation of the Fuel Cell at the Nextel facility is attached hereto as Exhibit B.

approximately 300' away from the nearest manned building. The Facility is completely surrounded by 6' high barbed-wire fences. Access to the Facility is limited to two locked gates. Nextel will retain title ownership of the Fuel Cell at all times.

The proposed Fuel Cell will operate only during power failures and one 15-minute testing interval every twenty-eight (28) days. The Fuel Cell has a decibel rating of 60 dBA at 1 meter, which is analogous to normal conversational tone.

OTHER REQUIRED REGULATORY APPROVALS

The Fuel Cell does not require local wetlands approval or local zoning approval.

ENVIRONMENTAL BENEFITS OF THE PROJECT

The Fuel Cell does not emit pollutants. The Fuel Cell does not burn any fossil fuels and as a result, eliminates the air emission issues usually associated with traditional diesel and propane back up generation sources. Pursuant to Connecticut General Statutes §16-50g, this installation will foster improvement in the method of storing fuel and generating electricity in the interest of protecting the quality of the environment.

The Fuel Cell itself is 80% recyclable. The Fuel Cell will only run during power failures and one 15-minute testing interval every 28 days. When running, it has a decibel rating of 60 dBA at 1 meter, which is analogous to normal conversational tone.

ECONOMIC BENEFITS OF THE PROJECT

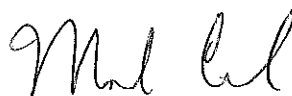
Fuel Cell technology encourages a competitive generation market by providing alternative generation services, as expressed in Connecticut General Statutes §16-244 et seq. This Fuel Cell installation will support the efforts of the State of Connecticut in becoming a leader in the utilization of fuel cell technology.

CONCLUSION

Nextel respectfully requests the Council approve, through a Declaratory Ruling pursuant to Connecticut General Statutes §16-50k, the installation of the Fuel Cell at the Nextel telecommunications facility located at 188 Moody Road, Enfield, Connecticut. The Fuel Cell will benefit Connecticut's environment and its economy.

The Council's prompt consideration of the petition for jurisdictional determination is very much appreciated.

Respectfully Submitted,
NEXTEL COMMUNICATIONS OF
THE MID-ATLANTIC, INC.

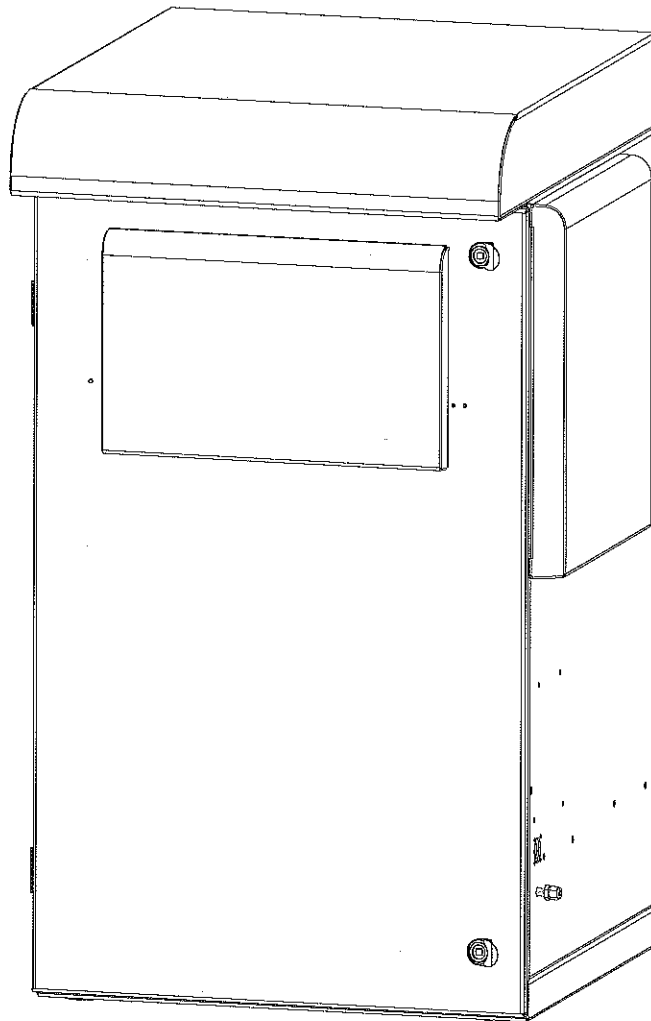
A handwritten signature in black ink, appearing to read "Mark Cook", written in a cursive style.

Mark Cook
Nextel Communications of the Mid-
Atlantic, Inc.
100 Corporate Place, First Floor
Rocky Hill, CT 06067
Ph: (860) 367-1812
Fax: (860) 513-5477

EXHIBIT A



GenCore® Back Up Power Product Description and Site Preparation Guide



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Issue Date: 9/09/04
Revision: B

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Plug Power Inc.
Latham, New York 12110
(518) 782-7700

Fuel Cell Systems Descriptions and Siting Requirements

Document Revision Status: Determined the last entry in the "REV" and "Date" Column

<u>REV</u>	<u>DESCRIPTION</u>	<u>SIGNATURE</u>	<u>DATE</u>
B	Upgraded to reflect new product names and clarifies product descriptions and requirements.	B. Kuiper	9/09/04

This Manual applies specifically to the following Plug Power products:

GenCore® 5T48 Fuel Cell Systems: Compatible with Telecom Site Back up power requirements, negative 48vdc (nominal), grounded DC Bus applications. NEBS Level 3 Compliant, FCC Class A Compliant, UL Listed.

GenCore® 5B48 Fuel Cell Systems: Compatible with Broadband Site Back up power requirements, positive 48vdc (nominal), grounded DC Bus applications. NEBS Level 3 Compliant, FCC Class A Compliant, UL Listed.

GenCore® 5T24 Fuel Cell Systems: Compatible with Wireless Telecommunication Site Back up power requirements, positive 24VDC (nominal), grounded DC BUS applications. NEBS Level 3 Compliant, FCC Class B Compliant, UL Listed.

ABOUT THIS GUIDE

Information provided in this guide is subject to change without notice. Plug Power assumes no responsibility for errors and/or changes to this guide. This guide is intended for basic product descriptive functionality and siting criteria required for the GenCore® 5T48, GenCore® 5B48 and GenCore® 5T24 Fuel Cell Systems. If additional information needs to be obtained on this product, contact your Market Engagement Manager at Plug Power.

Installation and service may only be performed by trained and certified personnel. Installation and operation of this piece of equipment in a negligent manner could result in death, serious injury, and/or property and equipment damage. When required, proper Personal Protection Equipment (PPE) should be used while working with this product. Be safety conscious! Working around combustible gases, pressurized gases, pressurized piping and live electrical equipment can be dangerous if safety precautions are not taken. Therefore, this document is not intended to be an instruction manual for untrained persons.

The manufacturer cannot anticipate every circumstance that might involve a hazard. For that reason, safety signs in the manuals and on the equipment are not all-inclusive. Adhering to all safety and installation instructions provided in the product manuals, as well as employing proper workmanship performed by a factory trained and certified technician will help to ensure a safe and trouble-free installation.

WELCOME

Dear Customer,

Thank you for requesting the GenCore® Back Up Power Product Description and Site Preparation Guide. It is provided to you as a courtesy and a reference to help you make preliminary siting decisions. It will, also, help identify issues which may affect the feasibility and cost of the installation. As you may know, this information is also included in its entirety in the GenCore® Installation Manual, provided to Customers upon delivery of their GenCore® Fuel Cell System.

If you have any questions as a result of using this Site Preparation Guide, or wish to provide us with feedback, please call my office at 518-782-4000.

Thank you for using the GenCore® family of products.

Sincerely,

David Rollins
Manager, Market Engagement
Plug Power Inc.

EQUIPMENT DESCRIPTION

The GenCore® Back Up Power System is a hydrogen fueled (Fuel Cell System) backup DC power generator capable of up to 5 kWe net output. The standard product application is intended as backup power for Telecommunications, Broadband or Wireless Communication equipment (switching equipment, and other critical loads) in the event normal/grid power is interrupted to the facility. The GenCore® 5T48 provides negative 48vdc nominal (see specifications) output voltage to a DC bus. The GenCore® 5B48 provides positive 48vdc nominal (see specifications) output voltage to a DC bus. The GenCore® 5T24 provides positive 24vdc nominal (see specifications) output voltage to a DC bus. The Back Up Power Systems are designed for commercial sales and for outdoor installations only. Siting systems indoors requires special considerations not covered by this Siting Preparation Manual.

Containing no user serviceable parts, service is to be provided by trained and certified technicians only. The GenCore® Back Up Power System provides backup DC power at a user defined voltage setpoint. It is designed to perform periodic "conditioning" cycles automatically. These cycles provide a diagnostic, self-check of the GenCore® Back Up Power System's controls and subsystems, and to exercise auxiliary equipment.

The GenCore® Back Up Power Fuel Cell System is a Power Generation Module and a Hydrogen Supply. The Power Generation Module contains the Fuel Cell Stack, Power Conditioning Electronics, and auxiliary support subsystems. The Power Generation Module is operated with a Hydrogen Supply that may be a Customer designed and constructed external hydrogen supply, or a Customer-ordered and Plug Power supplied Hydrogen Storage Module. The optional Hydrogen Storage Module is a self-contained unit that houses 6 hydrogen cylinders and provides all required pressure regulation and valving.

Customer Options and Standard Features

The GenCore® Fuel Cell Systems come with a number of standard features that the Customer may choose to use. The customer can, also, order the additional following Options which are built into or provided with the Fuel Cell System (FCS) by Plug Power. Knowing the applicable options/features that the Customer will use will allow the Installer to properly prepare the FCS Site.

Customer-ordered Factory-installed Options:

Hydrogen Supply: The Customer provides the Hydrogen Supply for the FCS. This can be from an existing/constructed bulk storage or bottled system, or the Customer can order an optional Plug Power Hydrogen Storage Module (HSM), containing an enclosure for standard Hydrogen cylinders (bottles) and the piping and controls to deliver Hydrogen to the Power Generation Module. When an HSM is used, the FCS can monitor Hydrogen Bank pressures and send out an immediate message when the fuel supply needs replenishing (see "Modem Option" and "GenCore® Digital Outputs" below).

Safety Sensors: An optional factory-installed Safety Sensor Kit is available. It contains all of the following: Front and Rear Service Panel Tamper Switches with Service Bypass Switch, Pad Shear Sensor (system dislodged from pad anchoring) and Water Intrusion Sensor (flooding).

Modem Option: A Customer Modem card option allowing the FCS to download information is a special card ordered from Plug Power and is installed at the factory. The Modem downloads FCS statistics and events daily. Events include normal system operation and maintenance codes. The FCS, also, can send an immediate signal for "Low Fuel" (only if an HSM, see above, is used) and for unexpected problems that cause system shutdown or inability to start up.

Multiple GenCore® Systems Operations: With the factory-installed optional LAN card, the Customer can coordinate multiple systems at a site. This allows one GenCore® to be the central controller and the others to follow. The Customer would provide connection cables and a LAN hub with power supply to allow a communication circuit.

Standard Features (built into every GenCore® Fuel Cell System):

Note: The Customer provides all external wiring/components to enable use of the features. Generally 22AWG, shielded, twisted pair cables are used for interconnection.

Safety Circuit Customer Inputs: GenCore® Fuel Cell Systems are prewired to accept two dry contact inputs from the Customer. These are Customer inputs to the FCS's Emergency Stop circuit. Examples of the inputs include an external, remotely mounted Emergency Stop Switch or an input from a Customer Fire Alarm circuit or other Building Safety System. Jumpers are installed at the factory on the terminal board connections that are removed if the Customer determines the input circuit will be used.

Communication Interface: An RS232 terminal board connection point exists in all systems for an alternate external Service Port allowing a computer with the Service Interface program to monitor the FCS without opening the service panels.

GenCore® Digital Outputs: All GenCore® FCSs have prewired capability to supply digital output signals (alarms) to a Site Monitoring system for "Low Fuel" (only with optional Hydrogen Storage Module described above), "Minor Fault" (the Fuel Cell System can still operate but a parameter is out of normal band) and "Major Fault" (the Fuel Cell system cannot operate). Relays in the FCS provide either Normally-Open or Normally-Shut dry contacts to be wired in series with a Customer circuit that is part of a Site Monitoring system. This allows the Customer to receive these general FCS conditions without using the Modem option and running a phone line.

Product Specifications

Product Characteristics		5T48 and 5B48	5T24
Performance	Rated Net Output*	0 to 5,000W	0 to 5,000W
	Adjustable Voltage	5T48: -46 to -56 Vdc (-48 Nominal)	5T24: +23 to +28
	Adjustable Voltage	5B48: +46 to +56 Vdc (+48 Nominal)	Vdc (+24 Nominal)
	Operating Voltage Range	5T48: -42 to -60 Vdc	5T24: +21 to +30
	Operating Voltage Range	5B48: +42 to +60 Vdc	Vdc
	Operating Current Range	0 to 109 Amps DC	0 to 218 Amps DC
Fuel Supply	Gaseous Hydrogen	99.95% Dry	SAME
	Supply Pressure	64-96 psig	
	Fuel Consumption	40 slm at 3,000W; 75 slm at 5,000W	
Operation	Ambient Temperature	-40°C to 46°C	SAME
	Relative Humidity	0% to 95% Non-condensing	
	Altitude	-197 ft to 6000 ft	
Physical**	Dimensions	44" H x 26" W x 24" D	SAME
	Weight	500 Lbs	
Safety	Compliance	FCC Class A	FCC Class B
		ANSI Z21.83	
		UL Listed	
Emissions	Water	Maximum 2.0 Liters per hour	SAME
	CO, CO ₂ , NO _x , SO ₂	Only if constituents of fuel supply gas	
	Audible Noise	60db @ 1m	

*Rating applies for altitudes up to 1,000 ft. Beyond this, total power available will decrease 1.5% per 1,000 ft.

**Excludes fuel storage. Optional Hydrogen Storage Module is 44" H x 32" W x 24" D.

INSTALLATION MATERIALS KIT

Installation Part	Quantity	Notes
System Lifting Hardware		
Installation lifting bracket	2	Lifting brackets are installed with roof panel removed to the top of the PGM frame, right and left sides, using washers and screws.
1/4" washer	4	
screws	4	
System Anchoring Hardware		
HD Anchor bolt	3	Template to mark mounting holes. Bolts and washers to mount PGM to concrete pad.
1-3/4" galvanized washer	3	
Installation Template	1	
Rubber washer-foot	2	Spares in cases of damage or loss.
System Access Hardware		
Enclosure key	2	One key in the installation kit; the other attached to the Hydrogen Inlet (PGM right side).
Documentation Package		
Installation Manual	1	
Electrical Print	1	
Mechanical Process Print	1	
Software Compact Disc	1	

NOTE: In addition to the above materials, the system hold down bracket and rubber washer, holding the back of the system to the shipping pallet, are used during the system installation to anchor the system to the concrete pad. Do not discard these items when removing the system from the shipping pallet.

Required Customer-Supplied Installation Materials and Tools

GenCore® 5T24 Customer/Contractor-supplied materials are in the following table.

List does not include materials to connect to the Customer Facility.

(See Page 7 for GenCore® 5T48 and 5B48 Materials)

Contractor Materials Required	Description of use
1/4" Tubing	Connects Customer External Hydrogen Supply to PGM - **NOTE: If Hydrogen Storage Module (HSM) is ordered from Plug Power, connection hose and fittings are provided with the HSM Installation Kit
2" conduit	Sufficient length to connect from Customer DC Bus to PGM
2/0 (50ft or less) or 4/0 (up to 100ft) cable	Cables of sufficient length to connect from Customer DC Bus to PGM - Power cables
Flex lugs for 2/0 or 4/0 Power Cables	Standard 2-hole, 5/16" holes, 1.00" hole spacing. Panduit P/N # LCDX2/0-56D-X or LCDX4/0-56D-X
A lockable, 250A minimum, Single Pole/Single Throw Disconnect Switch	Required to isolate the GenCore from Customer DC Bus.
4AWG grounding cable (green)	Sufficient length to connect from Facility Ground to PGM Chassis
4AWG ground-cabling connection flex lug	Standard 2-hole, 1/4" Stud Holes, .75 Hole Spacing. Panduit P/N # LCDX4-14B-L, or equivalent
1" Conduit	Sufficient length to connect from Customer Facility to PGM - Control/communication wiring
2 conductor twisted pair shielded cable, 22 AWG - QTY 1	Remote DC Bus voltage sensing - REQUIRED
2 conductor twisted pair shielded cable, 22 AWG - QTY 2	Digital Inputs - OPTIONAL
2 conductor twisted pair shielded cable, 22 AWG - QTY 3	Digital Outputs - OPTIONAL
3 conductor shielded cable, 22 AWG - QTY 1	Remote RS232 Comm - OPTIONAL
4 conductor phone cable w/RJ11 connectors	Modem - OPTIONAL
Ring Terminal Connection lugs - 22-18 AWG, #10 Stud Size, Vinyl Insulated, Panduit P/N #PV18-10R-C, or equivalent.	For the Remote DC Bus voltage sensing, Digital Inputs and Digital Outputs wiring
1 Amp fuse	For the +24vdc leg of the Remote DC Bus voltage sensing circuit.
**NOTE: If Customer has ordered an Optional HSM, the following additional materials are required.	**NOTE: A mechanical fastener is supplied that accommodates 14AWG solid to 4AWG stranded cable. If a larger conductor is required, the contractor will also have to provide the proper lug with a 1/4" stud hole.
4AWG Grounding Cable (green)	Sufficient length to connect from Facility Ground to HSM Chassis
3/4" Conduit	Sufficient length to connect from Customer Facility to HSM
**NOTE: All conductors will be copper and rated to a minimum of 300vdc, 105°C unless otherwise specified by NEC or local electrical codes.	

**GenCore® 5T48 and 5B48 Customer/Contractor-supplied materials
are in the following table.**

List does not include materials to connect to the Customer Facility.

Contractor Materials Required	Description of use
1/4" Tubing	Connects Customer External Hydrogen Supply to PGM - **NOTE: If Hydrogen Storage Module (HSM) is ordered from Plug Power, connection hose and fittings are provided with the HSM Installation Kit
1-1/2" conduit	Sufficient length to connect from Customer DC Bus to PGM
1/0 (50ft or less) or 2/0 (up to 100ft) cable	Cables of sufficient length to connect from Customer DC Bus to PGM - Power cables
A lockable, 150A minimum, Single Pole/Single Throw Disconnect Switch	Required to isolate the GenCore from Customer DC Bus.
6AWG grounding cable (green)	Sufficient length to connect from Facility Ground to PGM Chassis
3/4" Conduit	Sufficient length to connect from Customer Facility to PGM - Control/communication wiring
2 conductor twisted pair shielded cable, 22AWG - QTY 1	Remote DC Bus voltage sensing - REQUIRED
2 conductor twisted pair shielded cable, 22AWG - QTY 2	Digital Inputs - OPTIONAL
2 conductor twisted pair shielded cable, 22AWG - QTY 3	Digital Outputs - OPTIONAL
3 conductor shielded cable, 22AWG - QTY 1	Remote RS232 Comm - OPTIONAL
4 conductor phone cable w/RJ11 connectors	Modem - OPTIONAL
1 Amp fuse	For the +48VDC leg of the Remote DC Bus voltage sensing circuit.
**NOTE: If Customer has ordered an Optional HSM, the following additional materials are required.	**NOTE: A mechanical fastner is supplied that accommodates 14AWG solid to 4AWG stranded cable. If a larger conductor is required, the contractor will also have to provide the proper lug with a 1/4" stud hole.
6AWG Grounding Cable (green)	Sufficient length to connect from Facility Ground to HSM Chassis
3/4" Conduit	Sufficient length to connect from Customer Facility to HSM
**NOTE: All conductors will be copper and rated to a minimum of 300vdc, 105°C unless otherwise specified by NEC or local electrical codes.	

EXHIBIT B

In addition to common hand tools, the following Customer-supplied tools are required for installation of the system:

- Handheld combustible gas detector - Bacharach Leakator 10, P/N 19-7051, or equivalent. For more information go to web: www.bacharach-inc.com.
- Liquid Leak detector or Liquid soap solution for leak checks
- Digital Multimeter (DMM) able to read DC Voltage, Current and Resistance.
- Service Computer (Any Pentium Class processor or better, 32MB SDRAM, Maximum Native LCD resolution must be a minimum of 1024 X 768 pixels, minimum of 1 serial port).
- RS232 Communications Cable (DB9M-DB9F at least 6' long)
- 5mm Allen wrench for lifting brackets
- 10mm deep well socket for ground lug, DC positive, and DC common connections
- 15mm masonry drill bit
- hammer drill
- Spreader bar, cables/straps and crane for lifting the approximately 500 pound Module
- 17mm socket for anchor bolts

Installation of the GenCore® 5T24 also requires a Customer-provided crimping tool to attach lugs to cables.

SITING REQUIREMENTS

The following guidelines are provided for proper Fuel Cell System placement. There is some freedom when choosing a location, however the information below must be considered:

Fuel Cell System (FCS)

- The FCS must be installed in an outdoor location. Ambient temperature range at the site must be between -40°C and 46° C. The Fuel Cell System must not be installed in areas prone to flooding.
- The FCS requires 3 feet in the front and rear of the system for service and maintenance access.
- The FCS will be located so that it is accessible to service and delivery equipment and to authorized personnel. Roadways or other means of access for emergency equipment, such as fire department apparatus, must be provided.
- Bollards are recommended to be used to protect the FCS structure if there is a reasonable potential of vehicular impact.

Hydrogen Storage

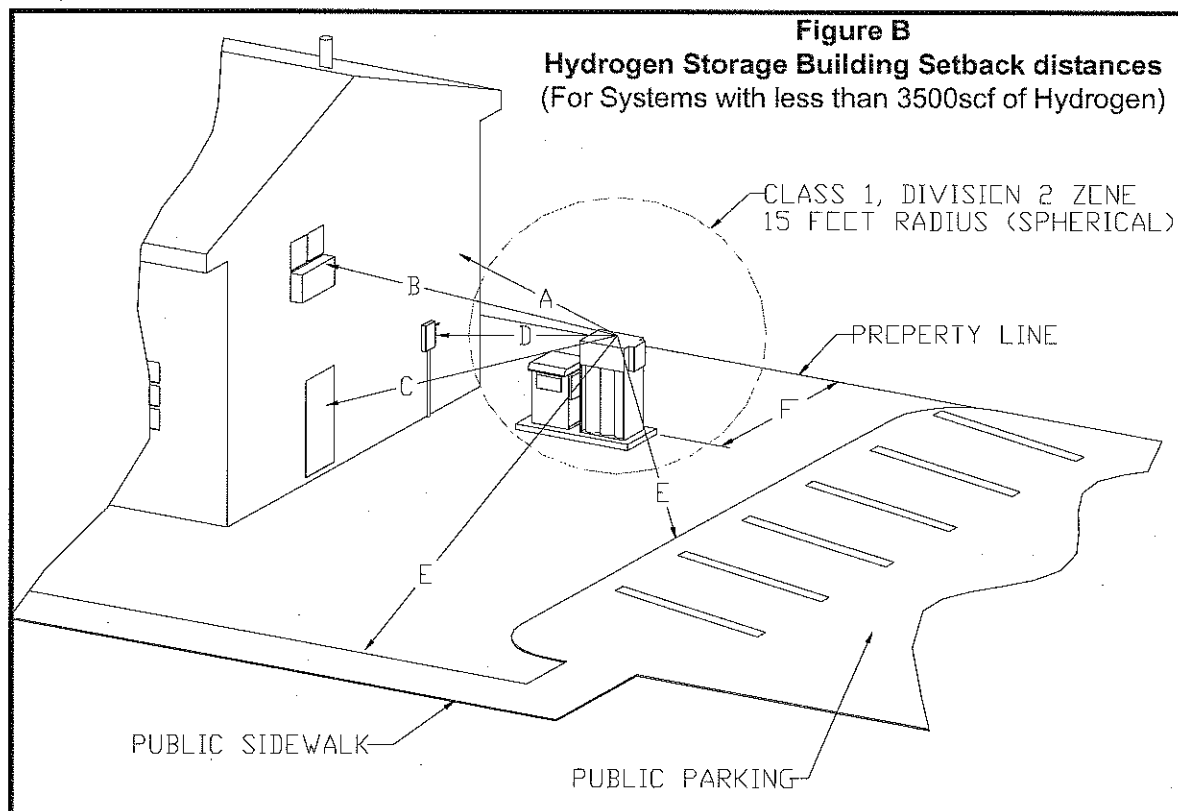
A Hydrogen Storage facility, or the optional Hydrogen Storage Module if ordered by the Customer, has additional siting criteria due to national fire codes. The siting criteria for typical installations having less than 3500 scf of Hydrogen are listed in Figure A and pictured in Figure B. This information is not all-inclusive. It is the responsibility of the installer/site owner to meet the site requirements for hydrogen storage in accordance with all applicable codes and standards.

Figure A Typical Hydrogen Storage Siting Criteria*		Minimum
Building or structure (A)	Walls adjacent to system constructed of non-combustible or limited combustible materials.	0 ft
	Walls adjacent to system constructed of other than non-combustible or limited combustible materials. (<1 hr fire rating)	10 ft
Wall Openings (C)	Not above system	10 ft
	Above any part of the Fuel Cell System	25 ft
Unclassified electrical equipment (not meeting NEC Class 1 Division 2) (D)		15 ft
Air compressor intakes or intakes to ventilating or air conditioning (B)		25 ft ¹
Places of public assembly		25 ft ²
Public sidewalks and parked vehicles (E)		15 ft
Line of adjoining property that can be built upon (F)		5 ft
Dry vegetation and combustible material		15 ft
Hydrogen storage system must be located above ground either at grade or above grade		----
Site has roadway or other means of access for emergency equipment, such as fire department apparatus.		----
Hydrogen storage must not be located beneath electric power lines or where exposed to failure of the power lines		----

*Refer to NFPA 50A and ICC International Fire Code Table 2209.3.1 for additional siting guidelines.

¹ Along natural and unobstructed line of travel.

² Reduction to 5ft. permitted where a 2hr. fire barrier interrupts the line of sight between the equipment and the exposure.



FUEL CELL SITE LAYOUT

Once the general system location has been determined and siting requirements have been met, the final positioning of the system must be decided. The following guidelines should be considered when selecting the final site layout:

Foundation

The foundation should be located in a level area to minimize the amount of excavation and avoid the need for a retaining wall. Once constructed, the foundation must be level to 1¼ inches over 6 feet which yields a maximum 1 degree pad tilt.

Drainage

The Fuel Cell System discharges water at up to 2 liters/hour (approximately .5 gallons/hour) while operating. A gravel filled dry well should be constructed under the drain point in the foundation for freezing climates or if the site has poor draining soil.

System Orientation

The Power Generation Module (PGM) is rigidly mounted to a foundation using supplied anchor bolts with the module positioned to properly receive the Hydrogen Supply. The front and rear of the PGM have service panels and require a minimum of 3 feet clearance for maintenance access.

Another consideration when determining the system orientation is the electrical connections to the building. The system should be oriented to minimize the cable length between the system and DC bus connection point. If the cable length exceeds 100', larger wire size may be required to minimize voltage drop across the conductors. Figure D shows the PGM Hydrogen Supply and electrical conduit connection points.

Conduit Routing

The Fuel Cell System has two conduit penetrations located on the rear service panel of the Power Generation Module cabinet. Conduit may be run above or below grade depending on the distance between the system and the building. In general, conduit should be buried below grade if the system is more than 2 feet from the building. Figure D shows the PGM Hydrogen Supply and electrical conduit connection points.

Additional Requirements if Ordering the Plug Power Hydrogen Storage Module

The Power Generation Module and optional Hydrogen Storage Module are designed to be placed adjacent to each other with a minimum of a 6 inch gap and maximum 12 inch gap to allow module connections. Both modules should be oriented to provide good access for gas cylinder replacement and for servicing the Fuel Cell System. At a minimum, 3 foot of open space should be provided around the front and rear of the system.

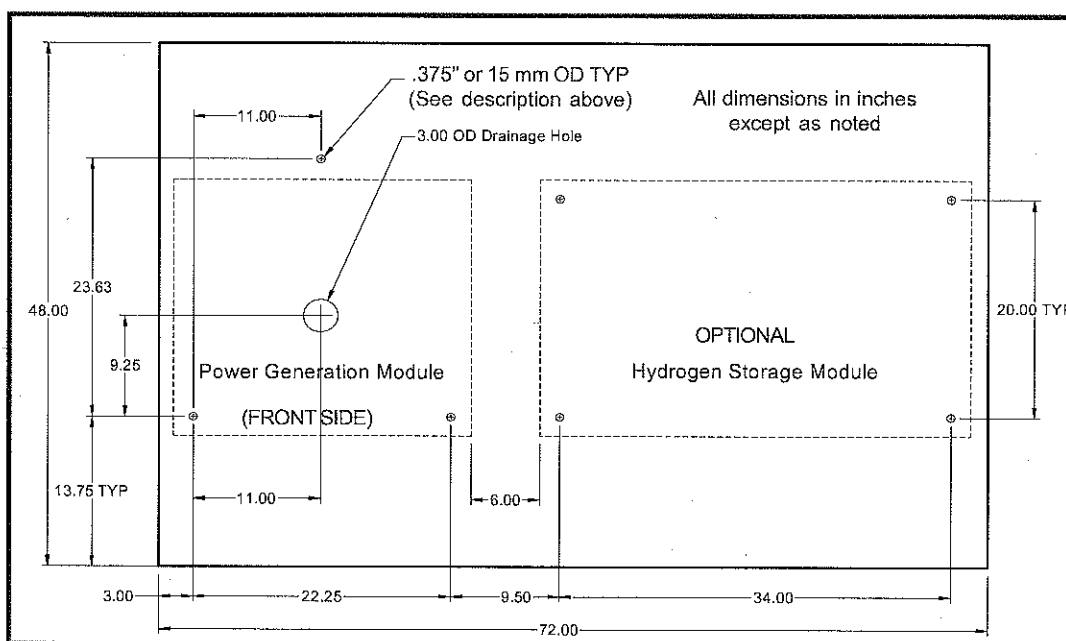
- The foundation must be a minimum of 48 inches by 72 inches by 6 inches. The 48 inch width provides space to stage gas cylinders during removal & replacement. (If the Power Generation Module (PGM) is installed without a Hydrogen Storage Module (HSM), the minimum pad dimensions are 30"x30").
- Foundation must be capable of supporting 500 lbs for the PGM (2000 lbs for the PGM and HSM).
- The foundation must be level to within 1¼ inches in 6 feet.
- Soil underlying foundation is well compacted with good drainage to prevent settling and frost heave.
- If the soil has poor drainage, a gravel drainage pit should be constructed under the water drain outlet of the system (see Figure C).

The anchor holes must be drilled within $\pm 1/8$ inch of the marked center point or misalignment will occur. This is best accomplished by pre-drilling a pilot hole.

- PGM Template will be positioned on the concrete pad (see Figure C)
- Three anchor holes must be drilled 4" deep in the corresponding locations.
- One 3" diameter hole needs to be drilled for drainage

Hydrogen Storage Module (HSM) Anchor Installation:

- HSM Template will be positioned on the concrete pad (see Figure C)
- Four anchor holes must be drilled 4" deep in the corresponding locations.



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ELECTRICAL CONSTRUCTION

Electrical cables to the Fuel Cell System (FCS) pass through two conduit penetrations on the rear panel of the Power Generation Module (see Figure D). They are sized for 1-1/2" for 5T/5B or 2" for 5W DC Bus Wiring, and 3/4" for 5T48/5B48 or 1" for 5T24 Control Wiring conduit fittings. Consult NEC and local electrical codes for minimum conduit sizes for all the conductors used.

Disconnect Switch (Customer Supplied)

A lockable disconnect switch is recommended to isolate the FCS from the DC Bus during service and for emergency response personnel. The switch must be rated for the output amperage.

NOTE: Only ungrounded (-48VDC, +48VDC or +24VDC) conductor is switched. See Figure E.

WARNING!

The disconnect switch must be NEC Class 1 Division 2 classified if located within 15 ft. of hydrogen storage.

DC Bus Wiring

All conductors will be rated to a minimum of 300vdc, 105°C unless otherwise specified by NEC or local electrical codes. Minimum wire gauges are shown in the table below. For wiring distances in excess of 100 feet, consult the manufacturer for recommended wire gauge.

- The DC bus wiring includes the -48VDC, +48VDC or +24VDC conductor, common conductor, ground and remote DC Bus voltage sensing wiring (See Figure E Electrical schematic).
- The GenCore® cabinet is equipped with a 1-1/2 inch for 5T48/5B48 or 2 inch for 5T24 conduit penetration for all DC power output wiring (Customer DC Bus Wiring).
- The DC power output of the Fuel Cell System is fused internally at 150A.
- The remote DC Bus voltage sensing directly monitors the bus voltage and allows the FCS controls to compensate for voltage loss across the power conductors.

DC Bus Wiring (Large Conduit)	Wire Type
(+/-) 48VDC DC Output (GC5B/5T) (1-1/2" conduit)	2 conductors, 1/O (up to 50' length) or 2/O (up to 100' length)
(+) 24VDC DC Output (GC5W) (2" conduit)	2 conductors, 2/O (up to 50' length) or 4/O (up to 100' length)
Ground	1 conductor, 6 AWG (per NEC code)
Remote DC Bus voltage sensing	2 conductor shielded cable, 22 AWG

WARNING!

If a disconnect switch is not installed, do not connect the DC Bus power connections to the building DC bus. The Fuel Cell System output voltage must be configured before final connection to the DC Bus until Fuel Cell System is ready to be commissioned.

Control Wiring

GenCore® has several external control input/output options. The cabinet is equipped with a 3/4" (5T48/5B48) or 1" (5T24) penetration for the control wiring. Control wiring will be a minimum 22AWG, 300vdc, 105°C cable/wire. Wire quantities and types are listed for each input/output in the table below.

Control Wiring (3/4" Conduit)	Wire Type
Optional Digital Inputs	2 twisted pairs, 22 AWG (4 conductors total)
Optional Digital Outputs	3 twisted pairs, 22 AWG (6 conductors total)
Optional Remote RS232 Comm	3 conductor shielded cable, 22 AWG
Optional Modem	4 conductor phone cable w/RJ11 connector
Optional LAN	8 conductor CAT5 Cable w/RJ45 connector

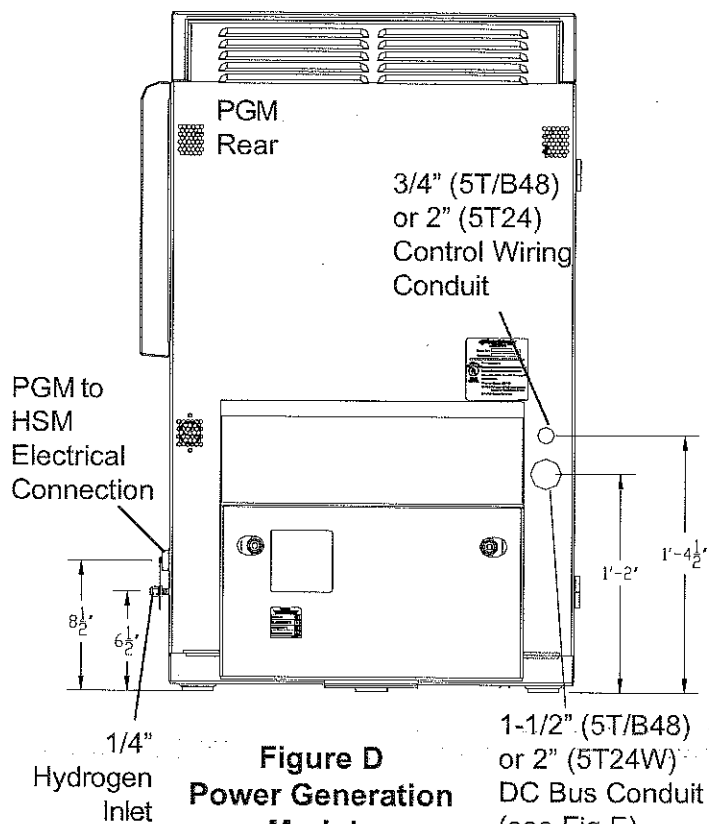


Figure D
Power Generation
Module
Conduit Locations

NOTE: Figure E, PGM to DC Bus, shows the GenCore® 5T48 configuration.

Bus connections for the GenCore® 5B48 would be to a positive 48VDC Bus. Bus connections for the GenCore® 5T24 would be to a positive 24VDC Bus.

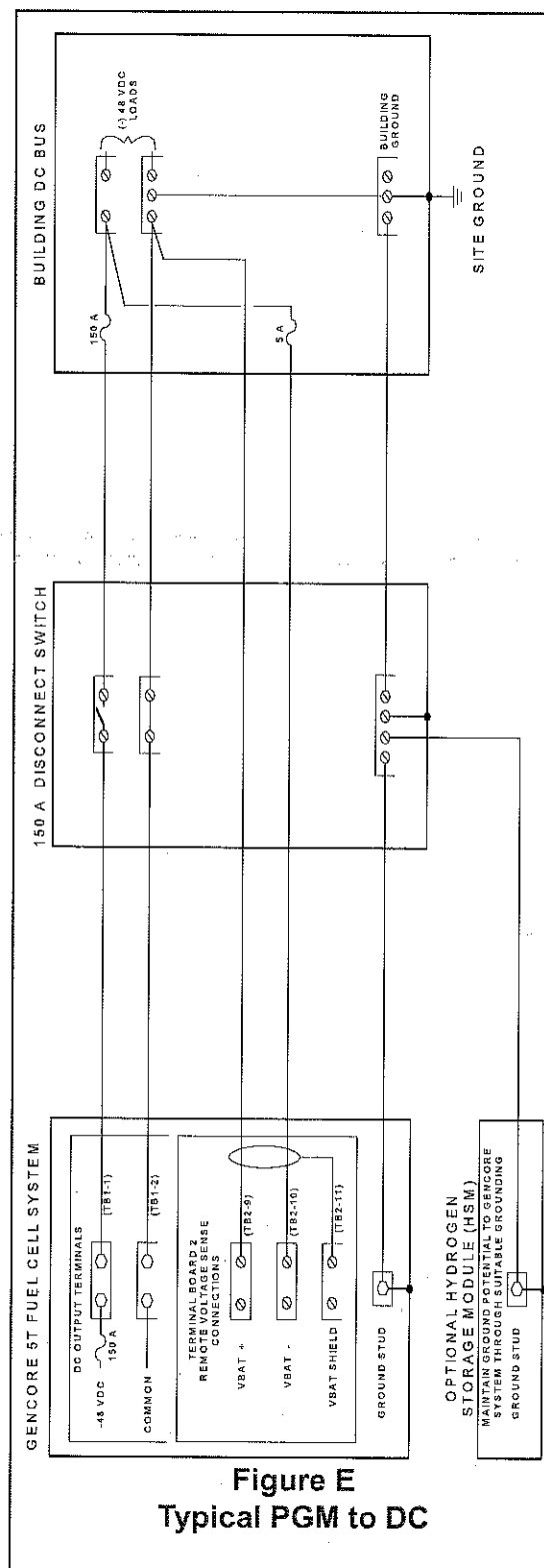


Figure E
Typical PGM to DC

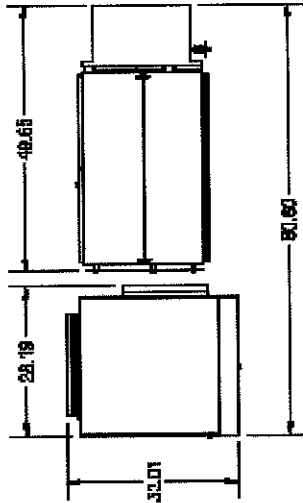
*GenCore® 5T48/5B48/5T24
Fuel Cell Systems Descriptions and Siting Requirements*

End of Document

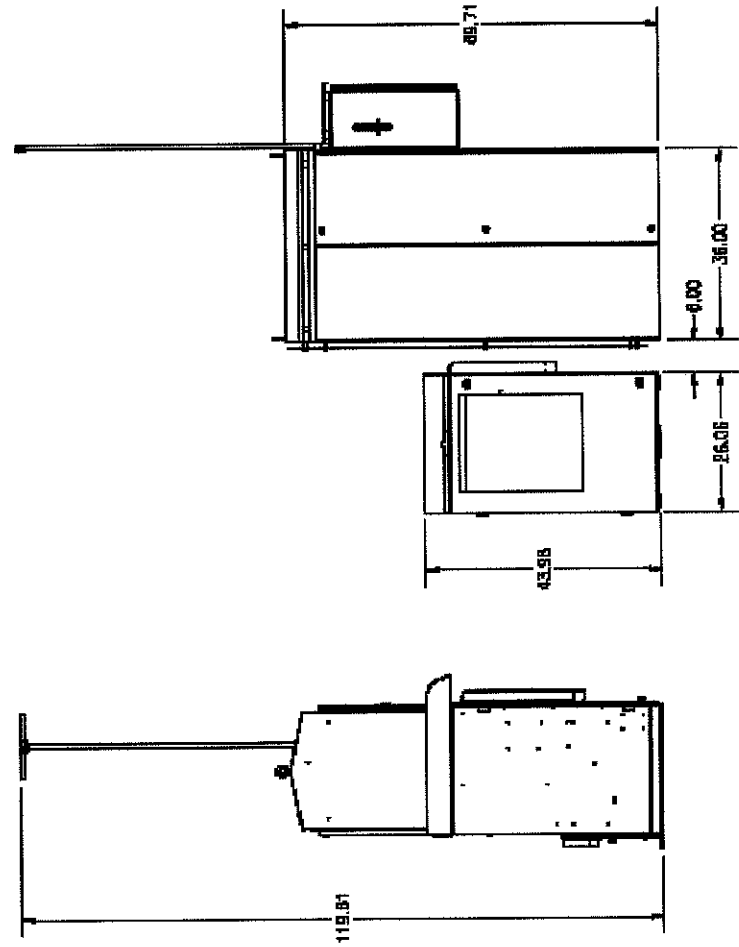
*Plug Power Proprietary and Confidential Information
DO NOT PHOTOCOPY, SHARE OR DISSEMINATE IN ANY MANNER
WITHOUT PRIOR WRITTEN APPROVAL OF PLUG POWER*

GENCORE TYPICAL SITE LAYOUT

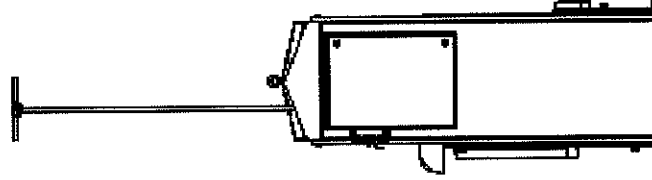
(ALL DIMENSIONS ARE IN INCHES AND APPROXIMATE)



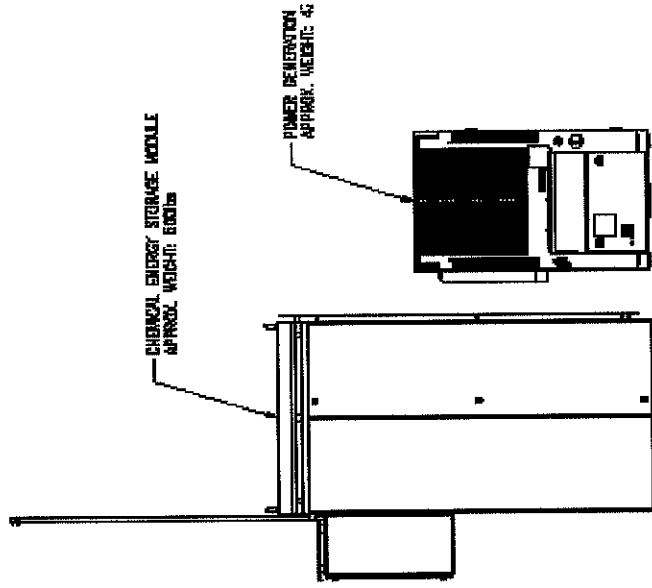
TOP VIEW



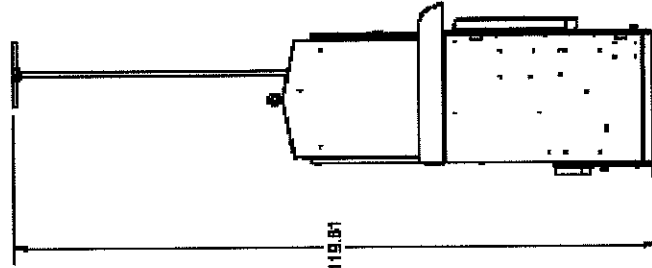
FRONT VIEW



RIGHT VIEW

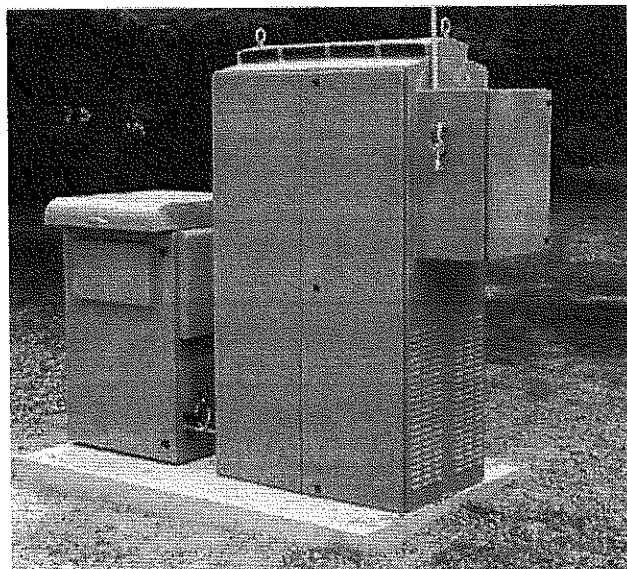


REAR VIEW



LEFT VIEW

Rugged, reliable design.



Flexible

Proton Exchange Membrane (PEM) Fuel Cell Stack – Proprietary fuel cell design delivers efficient, clean, quiet DC power. Integrated cell voltage monitoring provides continuous feedback for optimal fuel cell performance.

DC Power Conditioning – GenCore systems offer either -48Vdc or +24Vdc power conditioning to meet the needs of wireless and wireline providers.

Reliable

Electrical Energy Storage – Maintenance-free system provides immediate response to power interruptions.

Fuel Storage System – Available in a variety of forms, hydrogen fuel storage is scalable to meet site and provider specific needs.

Robust

Thermal Management System – Freeze-tolerant design is compliant with NEBS Level 3 standards, including operation from -40°C to 46°C.

Insulated Cabinet – NEBS Level 3 compliant design is finished with high-quality paint process that protects the exterior finish.

PHOTO COURTESY OF ONEIDA COUNTY RURAL TELEPHONE. GENCORE® SYSTEM (LEFT) INSTALLED WITH OPTIONAL FUEL STORAGE SYSTEM.

GenCore

PRODUCT CHARACTERISTICS

5T48

5T24

Performance	Rated Net Output ¹	0 to 5,000 W	0 to 5,000 W
	Adjustable Voltage	-46 to -56 Vdc (-48)	+25 to +27 Vdc (+24)
	Operating Voltage Range	-42 to -60 Vdc	+21 to +27 Vdc
	Operating Current Range (net)	0 to 109 Amps	0 to 218 Amps
Fuel	Gaseous Hydrogen	99.95% Dry	99.95% Dry
	Supply Pressure	80 +/- 16 psig (5.5 +/- 1.1 bar)	80 +/- 16 psig (5.5 +/- 1.1 bar)
	Fuel Consumption	40 standard liters per minute at 3,000W 75 standard liters per minute at 5,000W	40 standard liters per minute at 3,000W 75 standard liters per minute at 5,000W
Operation	Ambient Temperature	-40°C to 46°C	-40°C to 46°C
	Relative Humidity	0% to 95% Non condensing	0% to 95% Non condensing
	Altitude	-197 ft to 6,000 ft (-60 m to 1829 m)	-197 ft to 6,000 ft (-60 m to 1829 m)
Physical ²	Dimensions	44" H x 26" W x 24" D (112 cm x 66 cm x 61 cm)	44" H x 26" W x 24" D (112 cm x 66 cm x 61 cm)
	Weight	500 Lbs (227 kg)	500 Lbs (227 kg)
Safety	Compliance	FCC Class A	FCC Class B
		UL Listed to ANSI Z21.83	UL Listed to ANSI Z21.83
		GR-63, GR-1089, GR-487 (NEBS Level 3) ³	GR-63, GR-1089, GR-487 (NEBS Level 3) ³
Emissions	Water	Maximum 2.0 Liters per hour	Maximum 2.0 Liters per hour
	CO, CO2, NOx, SO2	<1ppm	<1ppm
	Audible Noise	60 dBA @ 1m	60 dBA @ 1m
Sensors ⁴	Gas Hazard Detection	Included	Included
Control	Microprocessor	Included	Included
	2 LED Panel	Included	Included
	Low Fuel Alarm	Included	Included
Communications ⁵		RS-232C	RS-232C
		Digital Form C Contacts	Digital Form C Contacts

¹ Output rated from -40°C to 42°C. From 42°C to 46°C, output decreases 2.5% per degree Celsius. Above 1,000 feet (305 meters), an additional de-rating of 1.5% per 1,000 feet applies.

² Excludes fuel storage.

³ Compliant where applicable.

⁴ Optional sensors are available to detect Pad shear, water intrusion and tampering.

⁵ Optional communications include MODEM.

Specifications subject to change without notice.

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7301 BC Apeldoorn
The Netherlands
Phone: 31 55 53 81 000
Fax: 31 55 53 81 099

www.plugpower.com

APPROXIMATE
NORTH



EXISTING NEXTEL GPS
ANTENNA MOUNTED TO
EQUIPMENT BUILDING,
(TYP. OF 2).

EXISTING CHAIN LINK
FENCE, (TYP.)

EXISTING NEXTEL 10'x20'
EQUIPMENT SHELTER

EXISTING SPRINT
EQUIPMENT AND
CONCRETE PAD WITH
ICE CANOPY

EXISTING NEXTEL COAXIAL
CABLES WITHIN EXISTING
ICE BRIDGE.

EXISTING 180' MONOPOLE

EXISTING AT&T EQUIPMENT
AND CONCRETE PAD

EXISTING AT&T ICE BRIDGE

EXISTING AT&T UTILITY
BACKBOARD

EXISTING TEST WELL

EXISTING TREE,
(TYP.).

EXISTING MULTI METER
CENTER ON SUPPORTS

EXISTING GRAVEL COMPOUND

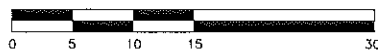


PROPOSED NEXTEL
FUEL CELL SYSTEM
ON CONCRETE PAD

EXISTING ACCESS GATE

EXISTING ACCESS DRIVE

1 SITE PLAN
LE-1 SCALE: 1" = 15'-0"



APPROVALS

OWNER _____ DATE _____

NEXTEL R.F. ENGINEER _____ DATE _____

NEXTEL CONSTRUCTION _____ DATE _____

NEXTEL SITE ACQUISITION _____ DATE _____

NEXTEL FIELD OPERATIONS _____ DATE _____

ISSUED FOR FINAL

URS

URS CORPORATION AES
795 BROOK STREET, BLDG 5
ROCKY HILL, CT. 06067
1-(860)-529-8882

NEXTEL

SITE NAME:

CT-0054
ENFIELD - MOODY ROAD

SITE ADDRESS:

188 MOODY ROAD
ENFIELD, CT 06082

SCALE: AS NOTED

DATE: 02/04/05

REV: 02/11/05

FILE NO: LE-1

DRAWN BY: PD

CHECKED BY: AA

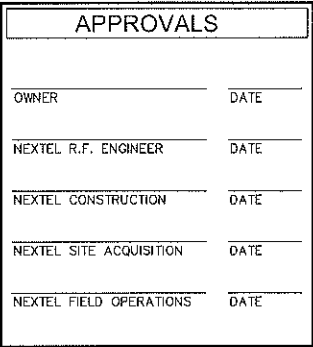
APPROVED BY: AA

URS JOB NO.: NX1 046

DRG. NO.

LE-1

DWG. 1 OF 2



OWG. 2 OF 2